IFW
AF/2124

Docket No.: TER99P3467

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

MAIL STOP: APPEAL BRIEF-PATENTS

By: _____ Date: July 21, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

Applic. No.	:	10/042,478 Confirmation No.: 6081
Inventor	:	Jose Antonio Garcia Tello et al.
Filed	:	January 9, 2002
Title	:	Module for Controlling a Drive and Method of Using the Module
TC/A.U.	:	2121
Examiner	:	Thomas K. Pham
Customer No.	**:**	**24131**

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

07/28/2004 HGUTEMA1 00000088 10042478
01 FC:1402 330.00 OP

BRIEF ON APPEAL

S i r :

This is an appeal from the final rejection in the Office action dated January 21, 2004, finally rejecting claims 1-11.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of $330.00 to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to Framatome ANP GmbH of Erlangen, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-11 are rejected and are under appeal. No claims were cancelled.

Status of Amendments:

No claims were amended after the final Office action. *A Response under 37 CFR §1.116* was filed on April 26, 2004. The Primary Examiner stated in an *Advisory Action* dated May 25, 2004, that the request for reconsideration had been considered but did not place the application in condition for allowance.

Summary of the Invention:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention relates to a module for controlling a drive, a control device

for an installation, and a method for controlling a drive using such a module.

Appellants explained on page 9 of the specification, line 3, that, referring now to the figures of the drawing in detail and first, particularly, to Fig. 1 thereof, there is shown an installation 10 which can endanger public safety. The installation 10 has a series of drives 11 which are driven via modules 12. Each of the drives 11 is assigned exactly one module 12.

Appellants further explained on page 9 of the specification, line 10, that Fig. 2 diagrammatically illustrates the construction of the module 12. The module 12 contains a microprocessor 14, a logic circuit 15 and a timing circuit 16. The microprocessor 14 is assigned a memory 17. Furthermore, terminals 18 and outputs 19 are present, which can transmit a plurality of signals, as illustrated by arrows 22 to 25. The microprocessor 14 and the logic circuit 15 are protected against a short circuit of the respective output 19 by an electronic protection device 21. The power required for operating the module 12 is supplied by a power supply 20. The module 12 furthermore has an interface 26 for connection to a diagnostic device or a bus. Coding plugs 27, which enable a

movement of the drive 11, are provided on a side that is accessible in the installed state of the module 12.

It is outlined in the last paragraph on page 9 of the specification, line 25, that commands from a control system 31 for operating tasks and a control system 32 for safety tasks are fed to the module 12 in accordance with the arrows 22, 23 (Figs. 3 and 4). The commands of the control system 32 for safety tasks must be handled with priority. The logic circuit 15 has a fixed-programmed priority function for this purpose.

As stated on page 10 of the specification, line 6, depending on the commands received, the module 12 passes output signals to the drive 11 in accordance with the arrows 24, 25. Start-up signals for the drive 11 or a test signal may be involved in this case. The state of the drive 11 is identified by the module 12, for example by an end stop switch or a measurement of the torque.

It is further outlined on page 10 of the specification, line 13, that the commands and also the output signals are stored together with the time of day in the memory 17, so that the operation is logged. For testing purposes, the memory 17 is read periodically or in a manner dependent on the operating behavior.

Appellants stated in the last paragraph on page 10 of the specification, line 19, that the terminal 18 and the interface 26 also enable information to be retrieved from the module 12. In particular, the content of the memory 17 or the software used by the microprocessor 14 can be read out. Depending on the respective application, one or both terminals 18 may be omitted and their functions integrated into the interface 26.

Appellants explained on page 11 of the specification, line 1, that Figs. 3 and 4 show two different connection variants. The variant in accordance with Fig. 3 shows the use of the module 12 in a modern installation with a bus 30, while in Fig. 4 the module 12 has been retrofitted in an old installation with individual cabling.

Appellants further outlined on page 11 of the specification, line 7, that a main control center 28 and an emergency control center 29 are provided in both variants. The installation is run by the main control center 28 in the normal state. After a failure of the main control center 28, a changeover is made to the emergency control center 29. The main control center 28 and the emergency control center 29 have control console panels 34 for controlling specific operational-critical or safety-critical drives 11 manually. Furthermore, indicators

35 are provided which indicate the state of these or other drives 11.

As stated in the next to last paragraph on page 11 of the specification, line 17, the control system 31 for operating tasks and the control system 32 for safety tasks are provided in both configurations. As soon as a safety-relevant state is identified, the required measures are proposed by the control system 32 for safety tasks or, depending on the setting, executed immediately.

It is outlined in the last paragraph on page 11 of the specification, line 24, that in Fig. 3, the module 12 is connected to the control system 31 for operating tasks. The control system 31 is connected to the bus 30, which is connected to the main control center 28 and the emergency control center 29. A diagnostic device 33 is clamped onto the bus 30. The control system 32 for safety tasks is independent of the bus 30. It is connected to the module 12, the main control center 28 and the emergency control center 29.

Appellants stated on page 12 of the specification, line 7, that, in the configuration in accordance with Fig. 4, the module 12 is not connected to the bus 30, but rather is cabled directly. The same reference symbols as in the previous

figures are used for identical or functionally identical components. During normal operation, the module 12 is controlled by the main control center 28 via the control system 31 for operating tasks. If appropriate, the control system 32 for safety tasks intervenes, whose commands are handled with priority by the module 12. Both control systems 31, 32 are connected to the main control center 28 and the emergency control center 29.

Appellants outlined in the last paragraph of the specification on page 12, line 18, that in both configurations, the space requirement and the power loss are significantly reduced by the module 12 according to the invention. Furthermore, the module 12 can be used in modern installations 10 with digital control technology, but can also be retrofitted in existing installations 10.

References Cited:

Patent Number	Inventor	Issue Date
5,361,198	Harmon et al.	November 1, 1994
5,392,879	Boyce et al.	February 28, 1995
5,745,539	Lang	April 28, 1998
6,119,047	Eryurek et al.	September 12, 2000

Issues

Whether or not claims 1-11 are obvious over Harmon et al. in view of Eryurek et al. further in view of Lang and further in view of Boyce et al. under 35 U.S.C. §103.

Grouping of Claims:

Claims 1 and 7-8 are independent. Claims 2-6 depend on claim 1 and claims 9-11 depend on claim 8. The patentability of claims 1 and 7-8 are separately argued. Therefore, claims 2-6 stand or fall with claim 1 and claims 9-11 stand or fall with claim 8.

Arguments:

In item 4 on pages 2-9 of the final Office action, claims 1-11 have been rejected as being obvious over Harmon et al. in view of Eryurek et al. and further in view of Lang and further in view of Boyce et al. under 35 U.S.C. § 103.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claims 1 and 7 call for, inter alia:

> a terminal for connecting to a control system for operating tasks and a control system for safety tasks,

commands from the control system for safety tasks having priority over commands from the control system for operating tasks;

a microprocessor for processing the commands from both the control system for operating tasks and the control system for safety tasks, said microprocessor coupled to said terminal;

a logic circuit for prioritizing the commands from the control system for safety tasks, said logic circuit connected to said microprocessor;

at least one output coupled to at least one of said microprocessor and said logic circuit;

an interface for connecting to one of the control system for operating tasks and a diagnostic device, said interface connected to said microprocessor; and

a memory for storing the commands and replies, said memory connected to said microprocessor;

said microprocessor and said logic circuit connected in parallel with respect to an incoming data stream.

Claim 8 calls for, inter alia:

providing a control device having two manual control stations being separate from one another, and a module connected to each of the two manual control stations, the module containing:

a terminal for connecting to a control system for operating tasks and a control system for safety tasks, commands from the control system for safety tasks having priority over commands from the control system for operating tasks;

a microprocessor for processing the commands from both the control system for operating tasks and the control system for safety tasks, the microprocessor connected to the terminal;

a logic circuit for prioritizing the commands from the control system for safety tasks, the logic circuit connected to the microprocessor, the logic circuit and the microprocessor connected in parallel with respect to an incoming data stream;

at least one output coupled to at least one of the microprocessor and the logic circuit;

an interface for connecting to one of the control system for operating tasks and a diagnostic device, the interface connected to the microprocessor; and

a memory for storing the commands and replies, the memory connected to the microprocessor; and

indicating a state of the drive in both of the two manual control stations.

The fact that the Examiner has to combine four (4) references with each other in order to be able to argue against the subject matter of the invention of the instant application already indicates the inventive level of the subject matter of the invention of the instant application. A general allegation that it would be obvious to one of ordinary skill in the art to combine, without indicating any teaching, suggestion, or motivation in the cited references to do so, is not well-founded.

The Examiner has arbitrarily assigned individual features to the disclosure passages in the references. No hint or suggestion could be taken from the references as to why a person skilled in the art should combine the features specifically mentioned therein with each other in the specific manner. Therefore, the Examiner's evaluation of the state of the art is based on a retrospective view and does not provide

support for the alleged obviousness. The Examiner has merely stated at the end of the rejection of each of claims 1, 7, and 8 that the combination of references would provide faster processing speeds. This is merely a generalization and there is no indication that there is a hint or suggestion in the prior art as a whole, as is required, and where in prior art such a hint or suggestion is made.

Applicants especially emphasize that the subject matter of the invention of the instant application does not solely lie in the individual components of the control module, but also in their relation to each other with regard to circuitry. For example, it must be specifically pointed out that it is not just any arbitrary microprocessor, which is connected in parallel on the data stream side to any arbitrary logic circuit, but that it is exactly the logic circuit, which is provided for the assignment and allocation of the priority of the commands. In other words: according to the invention of the instant application, it is important which microprocessor and which logic circuit are to be connected in parallel on the data stream side. It is not evident how far a person skilled in the art would recognize, by combining the cited references, on which components of the systems provided respectively therein, the concept, which could possibly be taken from Boyce et al., of connecting the microprocessor in parallel with the

logic circuit, could be suitable or even employed in a promising way.

Further, the application of an additional logic circuit to a microprocessor in the module already shows the inventive activity because a person skilled in the art normally would not add an additional logic component when there is already a microprocessor.

According to the invention of the instant application, the microprocessor and the logic circuit are connected in parallel. A mere combination of the four cited references does not tell which microprocessor and which logic circuit would be connected with each other in parallel. The mere knowledge of the principal of parallel connection is not enough. Rather, according to the invention of the instant application, the exact "microprocessor for processing the commands from both the control system for operating tasks and the control system for safety tasks" and the exact "logic circuit for prioritizing the commands from the control system for safety tasks" are connected to each other in parallel. Boyce et al. do not provide any hint about which components in Lang or Harmon et al. would be connected in parallel. The arguments of the Examiner rely on the typical hindsight view

based on the knowledge of the invention of the instant application.

The "terminal" (18) in the sense of the invention of the instant application cannot be understood as a work terminal and especially not a workstation (104, 106, 106a) according to Harmon et al. Rather, the "terminal" (18) concerns a connection for accepting commands, both relevant operating tasks and relevant safety tasks. It is to be emphasized that the terminal (18) is not a stand-alone unit, but the terminal (18) is a part of the module (12) (see, for example, Fig. 2 of the instant application).

On page 2 of the final Office action, the Examiner has cited column 11, line 64 to column 12, line 3 of Harmon et al. in connection with the "terminal" (18) of the invention of the instant application. It clearly shows that the Examiner has incorrectly interpreted the term "terminal."

The "module" (12) according to the invention of the instant application may be compared with a module 114 or 118 according to Harmon et al. The term "control station" according to claim 7 of the instant application may be compared with the workstation 106 or 106a according to Harmon et al. Such a

"control station" is a part of a "control device," for example as shown by the reference numeral 100 of Harmon et al.

It can be seen that the reference Harmon et al. is exactly the opposite of the invention of the instant application. According to the invention of the instant application, the "microprocessor for processing the commands from both the control system for operating tasks and the control system for safety tasks" and the exact "logic circuit for prioritizing the commands from the control system for safety tasks" are implemented together in the module (12) and the microprocessor (14) and the logic circuit (15) are connected to each other in parallel. As shown in Fig. 2 of the instant application by the double arrows, the microprocessor (14) and the logic circuit (15) as well as the terminal (18) are connected with one another. This corresponds to the inventive concept of the invention of the instant application since the logic circuit (15) ensures the desired priority of the commands of the control system for safety tasks (see page 3, lines 4-10 of the specification of the instant application). In this function, the logic circuit (15) monitors the microprocessor (14).

In contrast, Harmon et al. teach in column 11, lines 53-37 in connection with Fig. 2a and column 11, line 64 to column 12, line 3, that the "non-safety grade control module" 114 is

independent of and separated from the "qualified, safety grade control module" 118. It is clearly shown in Fig. 2 of Harmon et al. that the QCM 118 (safety) and the CM 114 (non-safety) do not have a connection to each other and the respective computer systems 140 for "non-safety" and 142 for "safety" are strictly separated. Only the respective separated outputs are shown on the IPSO-display 122. Clearly, Harmon et al. teach the exact opposite of the invention of the instant application, namely the safety and non-safety components are in no way disposed in a common module and they are ensured to be able to act independently from each another.

In contrast to Harmon et al., in the invention of the instant application, the microprocessor (14) ("for processing the commands from both the control system for operating tasks and the control system for safety tasks") and the logic circuit (15) ("for prioritizing the commands from the control system for safety tasks") are placed together in a module (12) and are connected in parallel and thus the microprocessor (14) is dependent on the logic circuit (15), in order to ensure "commands from the control system for safety tasks having priority over commands from the control system for operating tasks."

The Examiner has stated "it would have been obvious to one of ordinary skill in the art to incorporate the parallel configuration of Boyce with the prioritization logic circuit of Lang because it would provide for faster processing speed and more accurate determination in system failure detection" (see the first paragraph on page 4 of the final Office action). However, this contradicts the statement in column 11, line 53 to column 12, line 3 of Harmon et al. ("The non-safety grade control module 114 is ... independent of ... the qualified, safety grade control module 118. ... It can be appreciated that FIG. 2 supports a separation of non-safety control and safety-protection systems to avoid common control/protection failures that would degrade the plant's defense-in-depth. This is accomplished by separate control modules 114 for normal operation, and for safety and protection 118, ..."). The teaching of Harmon et al. prohibits, even with the knowledge of the suggested parallel connection in Boyce, a connection of a QCM 118 (safety) and a CM 114 (non-safety). For the above reasons, a person skilled in the art would not take into consideration a combination of Boyce and Harmon et al.

In summary, the subject matter of the invention of the instant application is not made obvious by the mere enumeration of the cited references, since, on the one hand, the required

combination of four (4) references speaks for the presence of inventive activity, and, on the other hand, even when viewing the four (4) cited references in combination with each other, a person skilled in the art can only understand the concept of the invention of the instant application, namely which components must be connected with each other in which way, after having knowledge of the invention of the instant application. Especially, the reaching of Harmon et al. is in direct conflict with that of the invention of the instant application.

The remaining references do not overcome the deficiencies of Harmon et al. since they are used by the Examiner to show other features of the claims.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1 and 7-8. Claims 1 and 7-8 are, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claims 1 or 8, they are believed to be patentable as well.

In view of the foregoing, the honorable Board is therefore

respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,

LAURENCE A. GREENBERG
REG. NO. 29,308

For Appellants

YH
~~REL~~/bb

Date: July 21, 2004
Lerner and Greenberg, P.A.
Post Office Box 2480
Hollywood, Florida 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101

Appendix - Appealed Claims:

1. A module for controlling a drive, the module comprising:

a terminal for connecting to a control system for operating tasks and a control system for safety tasks, commands from the control system for safety tasks having priority over commands from the control system for operating tasks;

a microprocessor for processing the commands from both the control system for operating tasks and the control system for safety tasks, said microprocessor coupled to said terminal;

a logic circuit for prioritizing the commands from the control system for safety tasks, said logic circuit connected to said microprocessor;

at least one output coupled to at least one of said microprocessor and said logic circuit;

an interface for connecting to one of the control system for operating tasks and a diagnostic device, said interface connected to said microprocessor; and

a memory for storing the commands and replies, said memory connected to said microprocessor;

said microprocessor and said logic circuit connected in parallel with respect to an incoming data stream.

2. The module according to claim 1, wherein said microprocessor has a timing circuit.

3. The module according to claim 1, wherein said logic circuit has a fixed-programmed priority function for the commands from the control system for safety tasks.

4. The module according to claim 1, including at least one electronic protection device protecting against a short circuit of and connected to said output.

5. The module according to claim 1, including coding plugs disposed on a side of the module which is accessible in an installed state.

6. The module according to claim 1, wherein the drive is used in an installation that can endanger public safety.

7. A control device for an installation, comprising:

two manual control stations being separate from one another;

a control system for operating tasks;

a control system for safety tasks; and

a module connected to each of said two manual control stations, said module including:

a terminal connected to said control system for operating tasks and said control system for safety tasks, commands from said control system for safety tasks having priority over commands from said control system for operating tasks;

a microprocessor for processing the commands from both said control system for operating tasks and said control system for safety tasks, said microprocessor coupled to said terminal;

a logic circuit for prioritizing the commands from said control system for safety tasks, said logic circuit connected to said microprocessor;

at least one output coupled to at least one of said microprocessor and said logic circuit;

an interface connected to one of said control system for operating tasks and a diagnostic device, said interface connected to said microprocessor; and

a memory for storing the commands and replies, said memory connected to said microprocessor;

said microprocessor and said logic circuit connected in parallel with respect to an incoming data stream.

8. A control method, which comprises:

providing a control device having two manual control stations being separate from one another, and a module connected to each of the two manual control stations, the module containing:

a terminal for connecting to a control system for operating tasks and a control system for safety tasks, commands from the control system for safety tasks having priority over commands from the control system for operating tasks;

a microprocessor for processing the commands from both the control system for operating tasks and the control system for safety tasks, the microprocessor connected to the terminal;

a logic circuit for prioritizing the commands from the control system for safety tasks, the logic circuit connected to the microprocessor, the logic circuit and the microprocessor connected in parallel with respect to an incoming data stream;

at least one output coupled to at least one of the microprocessor and the logic circuit;

an interface for connecting to one of the control system for operating tasks and a diagnostic device, the interface connected to the microprocessor; and

a memory for storing the commands and replies, the memory connected to the microprocessor; and

indicating a state of the drive in both of the two manual control stations.

9. The method according to claim 8, which comprises using the diagnostic device for reading out software required for operating the module.

10. The method according to claim 9, which comprises connecting the diagnostic device to a bus connected to the module.

11. The method according to claim 9, which comprises connecting the diagnostic device to the interface of the module.